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THE INDO-AUSTRALIAN SPECIES OF THE ANT GENUS *STRUMIGENYS*: Groups of *horvathi*, *mayri* and *wallacei*[1,2]

By **William L. Brown, Jr**[3]

Abstract: Descriptions, figures, geographical distributions and biological notes are given for the *horvathi* group (*S. horvathi*, New Guinea ; *S. guttulata*, Queensland), the *mayri* group (*S. mayri*, New Guinea, Truk, Bismarck Archipelago, Cape York Peninsula of Queensland ; *S. ferocior* n. sp., Cape York Peninsula ; *S. hoplites* n. sp., Papua), and the *wallacei* group (*S. wallacei*, New Guinea ; *S. opaca*, Cape York Peninsula).

INTRODUCTION

This is another part in my continuing series on the species of *Strumigenys* in the natural faunal area extending from India and China to Australia and the Pacific islands. Previous parts are listed in the bibliography (Brown, 1949-1971).

Material studied comes from a number of sources, listed here with their abbreviations used in the text: Australian National Insect Collection (ANIC), Canberra, Australia, mainly collected and sent by R. W. Taylor of the Commonwealth Scientific and Industrial Research Organization. Museo Civico di Storia Naturale, Genoa, Italy (MCSNG) courtesy of Dott. Delfa Guiglia. Hungarian National Museum (HNM), or Magyar Nemzeti Museum, Budapest, collected by L. Biró, courtesy of Dr Elisabeth Bajari. Museum of Comparative Zoology at Harvard University, Cambridge, Massachusetts, U. S. A. (MCZ), collections mainly by E. O. Wilson and the Darlingtons. Forel Collection, Muséum d'Histoire Naturelle, Geneva, Switzerland, courtesy of Dr Claude Besuchet. A few samples came also from T. E. Woodward of the University of Queensland and J. L. Gressitt of the Bernice P. Bishop Museum of Honolulu. Aid by the individuals named is gratefully acknowledged.

Measurements and proportions, and their standard abbreviations, are as in the other parts of this series (Brown 1949-1971). In brief, total length (TL) is the length of the body, including closed mandibles, measured axially through each tagma and then summed. HL is the length of the head in full-face view, including clypeus and occipital lobes. HW is the greatest transverse width of the head. ML is the distance to which the closed mandibles extend beyond the clypeal margin as seen in full-face (dorsal) view. Trunk length (WL) is measured diagonally in side view from anterior pronotal slope, normally omitting cervix, to metapleural extremity. Cephalic index (CI) is HW $\times 100/$

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HL ; MI is ML × 100/HL.

Group of **horvathi**

S. horvathi of New Guinea and *S. guttulata* Forel of tropical Queensland. Each of these species may include sibling species based on size, but evidence of this possibility is insufficient for a decision, because the size forms are in both cases allopatric so far as known. Distinctive species-group with form of head and body as in Fig. 5 and 6. Mandibles short and stout (Fig. 7), their inner margins extended as broad translucent lamellae. Dorsal apical tooth long and sharp, about twice as long as the equally acute ventral apical tooth and the single preapical tooth. Intercalary denticles 3 in number, of which the dorsalmost is extremely small and difficult to see. At "open hold" position, the mandibles form an angle of about 150°, more or less. Eye slightly prospicient and set behind a moderate concavity on each side of the head. Scrobes rather shallow. Scapes moderately flattened and moderately incrassate. Clypeus more than 1.5 × as broad as long, with slightly concave anterior border.

Promesonotum depressed, but not very broad, long-ovoid as seen from above; no humeral angles or tubercles. Metanotal groove obsolete. Propodeal teeth short but acute ; infradental lamellae varying in width with the population. Petiole semiglobose, with a rather long and slender anterior peduncle. Postpetiole transversely subelliptical, not much wider than petiolar node.

Spongiform appendages well developed on both nodes and at base of gaster. Basigastric costulae distinct but rather short; remainder of gastric dorsum smooth and shining, or nearly so, though the surface is often covered with more or less opaque foreign matter, possibly hardened secretion, which may extend to the postpetiole also. Body otherwise densely reticulo-punctulate, opaque, except for parts of sides of trunk and disc of postpetiole, which may be more or less smooth and shining in certain populations.

Dorsum of head, scapes, mandibles legs and most of dorsum of trunk and petiolar node covered with suborbicular to inverted-cochlear hairs, subappressed and appearing like shining scales. Slender erect clavate or remiform hairs on nodes and gastric dorsum; 1 or 2 pairs on petiole, 3 or 4 pairs on postpetiole, and about 42 on gastric dorsum; underside of gaster with a few fine, blunt erect hairs. A few slender oblique pointed hairs on each inner mandibular border, on the external mandibular borders (reclinate here), and on the mandibular apices (in addition to fine short reclinate hairs). Seven to eight spatulate hairs directed apicad along each anterior scape margin. Underside of head with scattered small reclinate hairs. No specialized erect hairs on head or trunk.

Color yellowish ferruginous to ferruginous brown, gaster often slightly darker than rest of body. Appendages more yellowish.

♀ only known for *S. horvathi* (*q. v.*), and this is aberrant. ♂ unknown.

Strumigenys horvathi Emery Fig. 5, 6, 7.

Strumigenys horvathi Emery, 1897 : 577, pl. 1 4, fig. 8, worker. Type loc. : Hansemann Mts., northeastern New Guinea. Holotype in HNM, examined.

Worker: Samples collected by E. O. Wilson in the rain forest of the Lower Busu River, near Lae, New Guinea, belong to two size classes, as follows: Series nos. 926, 939, 962 and 1009 (pooled n=23) : TL 2.1-2.2, HL 0.53-0.58, HW 0.43-0.46, ML 0.20-0.22, WL 0.50-0.56, scape L 0.26-0.29 mm ; CI 78-85, MI 37-39 (holotype belongs to this class : HL 0.58, ML 0.21 mm ; CI 82, MI 36). Series no. 886 (n=11) : 2.6-2.8, HL 0.68-0.73, HW 0.56-0.60, ML 0.28-0.29, WL 0.66-0.70, scape L 0.36-0.38 mm ; CI 82-83, MI 39-41.

Two series (nos. 819, 833, pooled n=16) from Ebabaang (1400 m) on the Huon Peninsula were intermediate in size between the two Busu River size classes: TL 2.3-2.5, HL 0.60-0.64, HW 0.48-0.51, ML 0.24-0.25, WL 0.58-0.61, scape L 0.31-0.34 mm; CI 78-82, MI 38-40. It is possible that the Busu River samples represent two sibling species that are character-displacing in this area, but we need more material to determine whether this is likely. The holotype of *S. horvathi* matches well the workers of the smaller form from the Busu River. The intermediate-sized form from the mid-mountain site at Ebabaang could be the "undisplaced" form of one of the two siblings, if there really are two. I have also noticed what may be a parallel case of character displacement among *Myrmecina* in the Wilson collection from northeastern New Guinea (unpubl. notes). A small sample from the Bulolo River Valley (received after the observations above had already been set down) bridges the gap between the small Busu River form and the intermediate Ebabaang series. The Bulolo Valley series averages TL 2.2, and HL ranges 0.58-0.60, HW 0.45-0.49, ML 0.23-0.24; CI 78-80, MI 39-40.

The inclusive range measurements for all samples (pooled n=54) is: TL 2.1-2.8, H L 0.53-0.73, HW 0.43-0.60, ML 0.20-0.29, WL 0.50-0.70, scape L 0.26-0.38 mm; CI 78-85, MI 37-41.

Taken collectively, these populations of *S. horvathi* are distinguished from *S. guttulata* by (a) their relatively longer mandibles and (b) the effacement of the sculpture over a patch involving most of the posterior half of the sides of the trunk, and most of the postpetiolar disc, though these basically smooth and shining areas are often rendered opaque by a film of foreign material, possibly a hardened secretion. The head also shows a tendency to be broader than in *guttulata*, but the difference is not clear-cut.

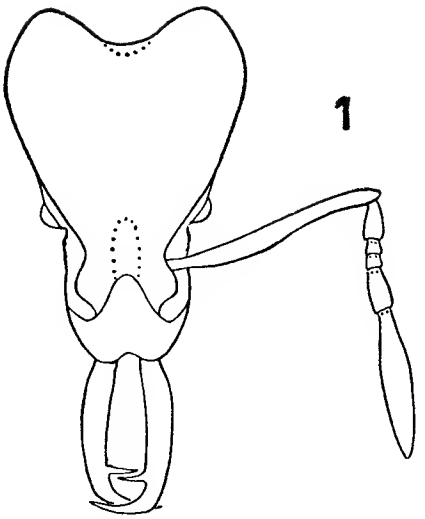
There is some variation, both among and within series, in width of propodeal lamellae, as well as in the number of erect hairs on nodes and gaster. The large-sized Busu River series (No. 886) is dark in color, from deep reddish brown to chocolate, while the smaller sympatric series are generally lighter, yellowish-to-medium-ferruginous. The mid-mountain (Ebabaang) samples are intermediate in color.

Queen (known only for the smaller Busu River form, sample nos. 926 and 1009, both alate and dealate; one individual measured from each series): TL 2.4; HL 0.53, 0.55; HW 0.43, 0.44; ML 0.17; WL 0.60; scape L 0.29, 0.30; forewing L (smaller specimen) ca. 1.8mm; CI 81, 80; MI 32, 31. The female is so different from the accompanying workers in mandible form and body pilosity that it might have been considered a separate species were it not for the exclusive female-worker association holding in two separate nest series. Their degenerate mandibles and fine pilosity indicate a good possibility that *S. horvathi* females may be temporary social parasites, perhaps in the nests of some other *Strumigenys* species. (It would be interesting to see whether the females of the other worker size classes are like these except for size).

Mandibles very short, the inner lamellae extending only a little more than half their exposed length. Apical and preapical teeth short, the dorsal apical tooth oblique; intercalary denticles one or two, indistinct.

Ground pilosity of head, trunk, and appendages much finer (not orbicular) and comparatively inconspicuous. Head and trunk with long, fine flagelliform hairs in bilaterally paired positions: 1 pair on vertex, 1 pair on posterior occipital lobes, 3 pairs on lateral borders of occiput, 2 pairs on anterior scape borders (2 hairs on each scape), several pairs on gular surface, 4-5 shorter pairs on trunk, a few scattered over the legs; about 3 fine flagellate pairs on petiolar node, 3-4 pairs on postpetiole, and roughly 60 hairs on both surfaces of the gaster replace the stout clavate or remiform hairs of the worker.

Otherwise, the queen differs from the co-nidal workers only in the usual ways. The middle sides of the trunk are smooth and shining. Wings with greatly reduced venation; forewing with only R + Sc, Sc, St, 2r and Rsf1 clearly demarcated; Rs beyond 2r, Mf1 and CuA are



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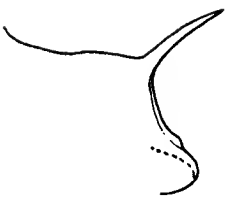

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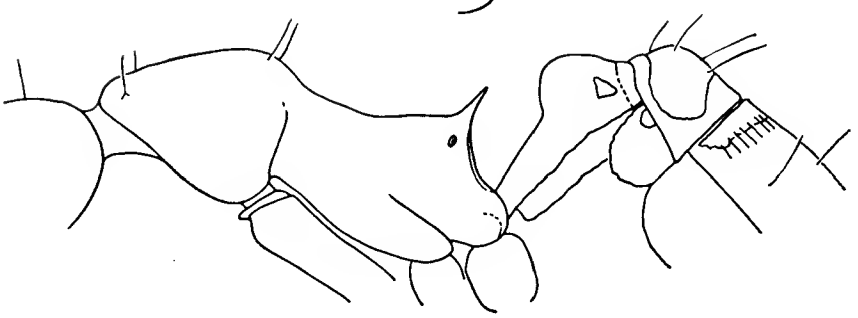

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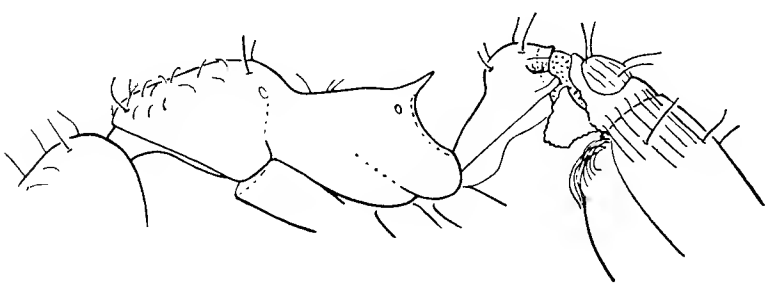

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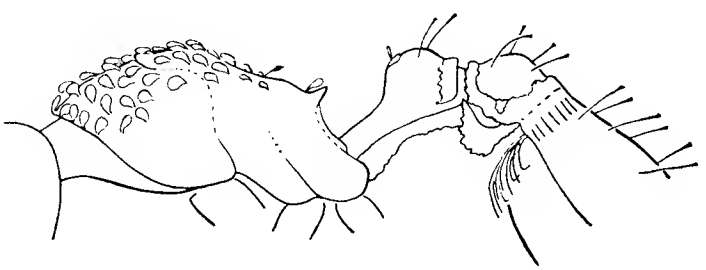

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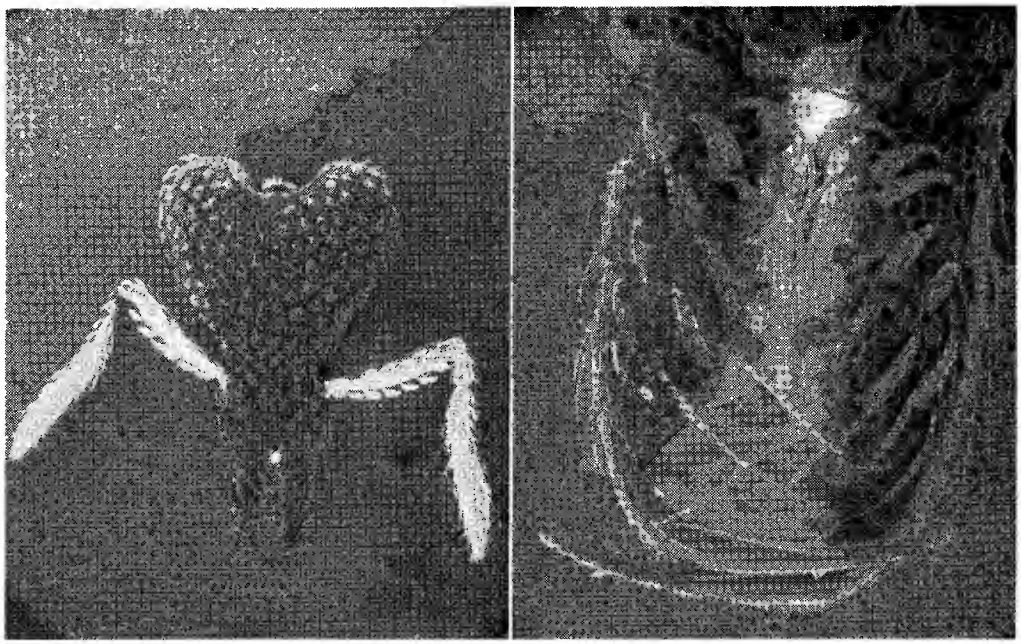

Fig. 6, 7. *Strumigenys horvathi*, worker from Busu River, near Lae, New Guinea. 6 (left), head in dorsal view, tilted very slightly to the insect's right, ×80, antennae bright due to charging. 7 (right), mandibles of the same specimen, showing translucent lamellae on inner margins, ×400. Scanning electron micrographs by the author.

present in shadow condition. The only winged queen was found in colony no. 1009 (Busu River) on May 11, 1955, together with at least one dealate.

DISTRIBUTION : New Guinea. Northeastern New Guinea : Hansemann Mts., L. Biró 1896 (holotype). Lower Busu River, near Lae, lowland rain forest, E. O. Wilson nos. 886, 926, 939, 1009. Ebabaang, Mongi Watershed, Huon Peninsula, 1400 m, mid-mountain rain forest, E. O. Wilson nos. 819, 833. Bulolo River Valley, 6 km NE of Wau, 1100 m, rain forest leaf mold, June 1962, R. W. Taylor.

BIOLOGY : Workers were found by Wilson in northeastern New Guinea in leaf litter, apparently foraging, at several localities during daylight hours. Workers were also found under the bark of Zoraptera-stage logs, and were knocked from the underside of small *Passalus*-stage logs. No. 833 was a group of workers without queen or brood found in a small soil cavity under a wood chip buried in leaf litter, plus strays from the surrounding litter. No. 926 was a large colony with more than 150 workers

Fig. 1-5, *Strumigenys* workers. 1, *S. mayri*, Karema, Papua, head in full-face view, pilosity omitted. 2, *S. hoplites* type, posterior half of trunk in lateral view, showing propodeal teeth. 3, *S. ferocior* type, trunk and most of hindbody in lateral view, showing erect pilosity only. 4, *S. mayri*, Karema, Papua, trunk and most of hindbody in lateral view. 5, *S. horvathi*, Busu River, near Lae, New Guinea, trunk and most of hindbody in lateral view. All enlarged about 70×. Fig. 1, 4 and 5 drawn by Nancy Buffler, Fig. 2 and 3 by Bente King.

taken under the bark of a Zoraptera-stage log. No. 1008 was a colony of 50–75 workers with one queen and abundant brood in all stages situated in a *Passalus*-stage rotten branch about 3–4 cm in diameter, buried in leaf litter.

Strumigenys guttulata Forel

Strumigenys guttulata Forel, 1902, *Rev. Suisse Zooll.*, 10 : 458, worker. Type loc. : Mackay, Queensland. Syntypes in Coll. Forel, one examined.

Worker : TL 2.8–3.0, HL 0.71–0.75, HW 0.55–0.57, ML 0.24, WL 0.70–0.74, scape L 0.37–0.39 mm ; CI 76–79, MI 32–34. (Measurements based on 20 specimens from Byfield, Queensland, and one syntype.) Three workers recently received from R. W. Taylor from the Iron Range on Cape York Peninsula agree well with the samples from central eastern Queensland, but are smaller in size (mean HL 0.63 mm) like the intermediate (Ebabaang) form of *S. horvathi.*

The more typical workers are similar to large-sized *S. horvathi* (e. g., no. 886 from the Busu River), but in *S. guttulata* the mandibles are significantly shorter relative to head length. Also, in *S. guttulata* the sides of the trunk and the entire posteriolar disc are distinctly and evenly reticulo-punctulate throughout. The color is concolorous medium ferruginous, considerably lighter than in *S. horvathi* no. 886.

Queen and ♂ unknown.

DISTRIBUTION : Central coastal region of Queensland ; Cape York Peninsula. In addition to the type collection made at Mackay by G. Turner, I have a series of workers collected by P. J. Darlington, Jr. and P. F. Darlington at Byfield, north of Yeppoon, Queensland, November 1957, from a nest under a rock, and 3 specimens from the Iron Range, Cape York Peninsula, Queensland, R. W. Taylor.

Group of **mayri**

S. mayri, S. ferocior and *S. hoplites. Worker*: Intermediate between *szalayi* group and *godefjroyi* group, and sharing a part of the characters of each group. Mandibles as in the *szalayi* group, but slightly curved ; preapical tooth situated at or in the apical quarter, not closely adjacent to apical fork. A more or less distinct incision present in front of each compound eye, but not limiting antennal scrobes, which are shallow, but extend back as far as the antennal scapes can reach. Eyes subprospicient. Occipital lobes not depressed, gently convex ; vertex with a broad, shallow longitudinal median sulcus. Antennal scapes curved to fit sides of head in repose, much as in *szalayi.*

Postcephalic body like that of *szalayi* in general plan, less slender, infradental carinae distinct. Spongiform appendages rather well-developed and areolate : median ventral strip and small posterolateral lobes on petiole; lateral, posterodorsal and ventral lobes on postpetiole ; anterodorsal and anteroventral borders on gaster. Erect pilosity positioned much as in *szalayi* group, but often flagelliform. Ground pilosity inconspicuous, usually developed best on head, slightly on trunk.

Strumigenys mayri Emery Fig. 1, 4.

Strumigenys mayri Emery, 1897: 579, pl. 14, fig. 12, worker, queen. Type loc. : Friedrich-Wilhelmshafen (=Madang), New Guinea, by present selection ; other original loc. is Berlinhafen (=Aitape), New Guinea. Types in MCSNG and HNM, examined.

Strumigenys mayri var. *bismarckensis* Forel, 1910 : 10, worker. Type loc. : Ralum, Bismarck Archi-

pelago. Type in Museum für Naturkunde der Humboldt Universität, Berlin, examined. **New synonym.**

Worker: TL 2.1–2.5, HL 0.55–0.65, ML 0.26–0.32, WL 0.55–0.66 mm; CI 70–76, MI 44–50. Distinctive characters are the moderate size (samples from the New Guinea highlands are largest in body size), only moderately long mandibles and antennae, and short propodeal teeth (not longer than the distance between the centers of their bases). Sides of trunk reticulate-punctulate, but the sculpture tends to be effaced on much of the mesopleura, and usually also on part of the metapleura; these surfaces consequently smooth and shining. Postpetiolar node finely reticulate and opaque in some samples, but in others, it is obscurely, finely longitudinally costulate or with sculpture effaced discad and smooth. Reclinate ground pilosity more abundant and widespread than in *hoplites, ferocior* or the *szalayi*-group species, at least on head and pronotum, but still not very conspicuous. The specialized erect hairs are very fine and vary considerably in length from one series to the next; some samples from the highlands of New Guinea and from near Lae have these hairs moderate in length and blunt-tipped, while examples from Papua and Cape York usually have some or all of the hairs long, fine and flagelliform. Prevailing color is light to medium ferruginous, with gaster either concolored or brownish to piceous. Some highland series are concolorous dark reddish brown. The sample from Benaga is exceptionally large and dark-colored, and has unusually long mandibles, and although it approaches the *S. ferocior* types in some respects, I consider it as an ecotype of *S. mayri*.

♂ (Bandong, New Guinea): TL 2.4, HL 0.46, greatest diameter of compound eye 0.17, WL 0.73, forewing L about 2.4 mm. Head without depressed occipital portion seen in *szalayi* males. Mandibles curved, falcate, edentate, tapered to acute apices and apparently not opposable. Notauli obliterated except for their anterior extremities. Propodeal teeth broad, subrectangular. Petiolar peduncle rising gradually to nodal summit. Spongiform processes obsolete, represented by a thin transparent rim on caudal margin of postpetiole. Body finely reticulate-punctulate, opaque; mesepisterna and gaster smooth and shining. Both surfaces of head and gaster, and dorsa of trunk and nodes, with a few long, fine hairs, mostly paired bilaterally. Color blackish-brown, trunk more brownish; appendages and gastric apex sordid yellowish-brown. Forewing veins (in both sexes) reduced to the costal-subcostal elements plus only the basal vein, M+CuA, CuA and the radial crossvein (2r). Hind wing with 4 submedian hamuli.

DISTRIBUTION: New Guinea, Bismarck Archipelago, Truk, Cape York Peninsula of Australia. Curiously, extensive collections by Mann and by Greenslade in the Solomon Islands have so far not included *S. mayri* from that archipelago.

NEW GUINEA: Astrolabe Bay, Stephansort (L. Biró 1898). Near Lae, Didiman Creek (III. 1955), E. O. Wilson no. 691, and Lower Busu River (IV–V.1955), Wilson nos. 963, 1049, 978, 1052. Bandong, Bunbok Valley, near Lae, 1300 m (V.1955), Wilson no. 1125. Yunzain to Joangeng, 1300 m, Mongi Watershed, Huon Peninsula (IV. 1955), Wilson no. 742. Benaga, ca. 25 miles SW Aiyura, Eastern Highlands, ca. 2000 m, berlesate of *Nothofagus* leaf mold, T. E. Woodward. Al Valley, near Nondugl, Western Highlands ca. 2150 m, 25.VIII.1956, berlesate, *Nothofagus* forest, T. E. Woodward.

PAPUA: Karema, Brown River (III.1955), Wilson nos. 563, 577 and without numbers. Bisianumu, near Sogeri (III.1955), Wilson nos. 634, 654, 671 and without numbers.

MICRONESIA: Truk, Tol Island, Mt. Unibot, 390 m, J. L. Gressitt.

AUSTRALIA, QUEENSLAND: Iron Range, Cape York Peninsula, rain forest, 9–15.VI.1971, R. W. Taylor and J. Feehan.

BIOLOGY: On New Guinea, all of the records from lower elevations are based on collections of strays made in rain forest leaf litter, or nests and nest fragments taken from rotten logs. At middle altitudes (1300 m: Bandong and Yunzain to Joangeng) nests were taken under moss-covered rocks in moist soil; both of these montane samples included winged forms (IV-V.1955). At the highest elevations (2000 m and over), strays were taken in forest litter berlesate.

Strumigenys ferocior Brown, new species Fig. 3.

Holotype worker: TL 2.6, HL 0.69, HW 0.49, WL 0.66, scape L 0.47, L right hind femur 0.51, tibia 0.40, tarsus including claws 0.65, eye diameter 0.04, petiole L 0.25 mm; CI 71, MI 52.

Larger and relatively more slender than *S. mayri*. Habitus tending toward that of *S. szalayi*, but occipital lobes not depressed, and spongiform appendages as in *S. mayri*. Slightly smaller than *S. hoplites*, and propodeal teeth shorter (slightly longer than the distance between the centers of their bases). Pleura of trunk entirely sculptured and opaque, except for a small, narrow strip along the lower anterior mesopleuron that can be seen at all only in exactly the right light. Postpetiole finely reticulate-punctulate, opaque. Ground pilosity of head fairly well developed, but very sparse on trunk. Erect hairs of medium length, stiff, bluntly pointed. Color light ferruginous; gaster a little darker, more brownish.

Holotype (ANIC) a single worker from the Iron Range, Cape York Peninsula, Queensland, Australia, 14. VI. 1971, rain forest berlesate, R. W. Taylor and J. Feehan.

Paratype workers (n=4) from same locality as holotype, 9-15.VI.1971, rain forest berlesate, Taylor and Feehan: TL 2.6-2.8, HL 0.69-0.71, HW 0.49-0.50, ML 0.36-0.38, scape L 0.47-0.48, WL 0.67-0.70 mm; CI 70, MI 52-54.

Queen: Two dealate paratypes with the same data as the workers. TL 3.0, HL 0.70, HW 0.51, ML 0.36, scape L 0.45, WL 0.71 mm; CI 73, MI 51.

Paratypes in ANIC and MCZ.

Although *S. ferocior* is very close to *S. mayri*, it was taken at a locality where Taylor and Feehan also secured samples of *mayri*, and the two forms are readily distinguished in this sympatric situation. Taylor sent it as a "species G," distinct from the *mayri* sample in the same shipment. Probably *ferocior* is a localized sibling species on the southern periphery of the *mayri* range in Cape York.

Strumigenys hoplites Brown, new species Fig. 2.

Holotype worker: TL 2.9, HL 0.77, ML 0.41, WL 0.73 mm; CI 68, MI 53. Similar to *S. mayri*, but larger in size, with a relatively longer and more slender head, body, mandibles and appendages. The preapical teeth are near the apical quarter of the mandibles. Trunk more deeply "sway-backed" than in *mayri*, and the propodeal teeth much longer (nearly 2 × as long as distance between centers of their bases), diverging, elevated, but very slightly arched. Pilosity arranged much as in *mayri*; ground pilosity poorly developed, inconspicuous; erect hairs truncate or bluntly pointed. Color bright yellowish ferruginous; gaster very slightly darker.

Holotype worker and a single paratype worker (TL 3.0, HL 0.78, ML 0.42, WL 0.74 mm; CI 70, MI 53) [MCZ] taken from a rotten log in rain forest at Bisianumu, near Sogeri, Papua, in March, 1955, E. O. Wilson no. 655. Known only from type locality.

Group of **wallacei**

S. wallacei, S. opaca. Two species related to the *szalayi* group, the workers robust and with broad heads (Fig. 8), depressed occipital lobes, incomplete scrobes, deep preocular excisions and convex, prospicient eyes. Mandibles slender, with a single long slender preapical tooth well separated from apical fork; fork of two long, slender teeth, the dorsal longer; intercalary teeth or denticles completely lacking from fork. Antennal scapes with a gentle double curve, as in *szalay*i, and similarly fitting against the sides of the head when retracted, but relatively shorter than in *szalayi* and more flattened and incrassate toward the apex.

Trunk more robust than in *szalayi* group, but similar in general plan, with the propodeum on a lower plane than the promesonotum, which descends to it through a saddle-like concavity. Propodeal teeth long, acute, gently elevated and feebly diverging, with an inconspicuous infradental carina beneath each one. Petiole with a long, slender peduncle and a short, rounded node; spongiform appendages reduced to a thin midventral strip and a fine posterodorsal collar. Postpetiole large and subglobular, slightly broader than long, with small ventral, posterior and ventrolateral spongy appendages. Gaster with a raised anterior spongiform border and short basal costulae, with or without additional punctulate-striate sculpture. Mandibles (and sometimes the gaster) smooth and shining; body and appendages otherwise finely and densely punctulate, opaque.

Ground pilosity better developed than in *S. szalayi*; dorsum of head, trunk and scapes with numerous short subappressed spatulate hairs; clypeus fringed with short spatulate hairs, and a conspicuous fringe of about 13 longer, obliquely set, stiff remiform hairs along anterior border of scape; finer reclinate hairs along posterior scape border. Nodes and gaster with a few scattered short appressed or subappressed hairs; 1 pair of large posteriorly inclined clavate hairs on postpetiole, and up to about 20 erect clavate hairs on gastric dorsum. No large specialized erect hairs on head or trunk.

Outstanding characters are the shape of head and mandibles and the conspicuous fringe of stiff oblique hairs on the anterior scape border. The ♀ and ♂ remain undescribed. The group is known only from New Guinea and Cape York Peninsula.

Strumigenys wallacei Emery Fig. 8.

Strumigenys wallacei Emery, 1897 : 578, pl. 14, fig. 7, worker. Type loc.: Lemien Forest, near Berlinhafen (=Aitape), New Guinea. Syntypes in HNM, MCSNG, not seen. *Strumigenys wallacei:* Brown, 1954 : 85, discussion.

Worker: TL 3.0-3.7, HL 0.75-0.90, ML 0.40-0.53, scape L 0.51-0.66, WL 0.70-0.89 mm; CI 92-93, MI 53-59.

The outstanding characteristics of this species are its broad head and the peculiar form of its promesonotum. The pronotal disc is nearly flat, submarginate laterally, and tilted downward toward the front; behind it, the mesonotum forms a high tumulus and then drops off steeply through a concave portion which blends into the nearly plane propodeal dorsum. The promesonotum thus forms a high, blunt angle contrasting sharply with the generally concave posterior truncal outline.

The gaster bears short longitudinal costulae at its base, and in some samples there is more or less extensive striato-punctulation near the base as well, but the first tergum (when perfectly clean) is predominantly smooth and shining.

The samples from Papua (Karema, Bisianumu) are smallest in size, vary from tan to reddish-brown in color, and tend to have restricted basigastric sculpture. The series from the Huon Peninsula (Nganduo) is larger, blackish brown in color, with lighter appendages, and has coarse,

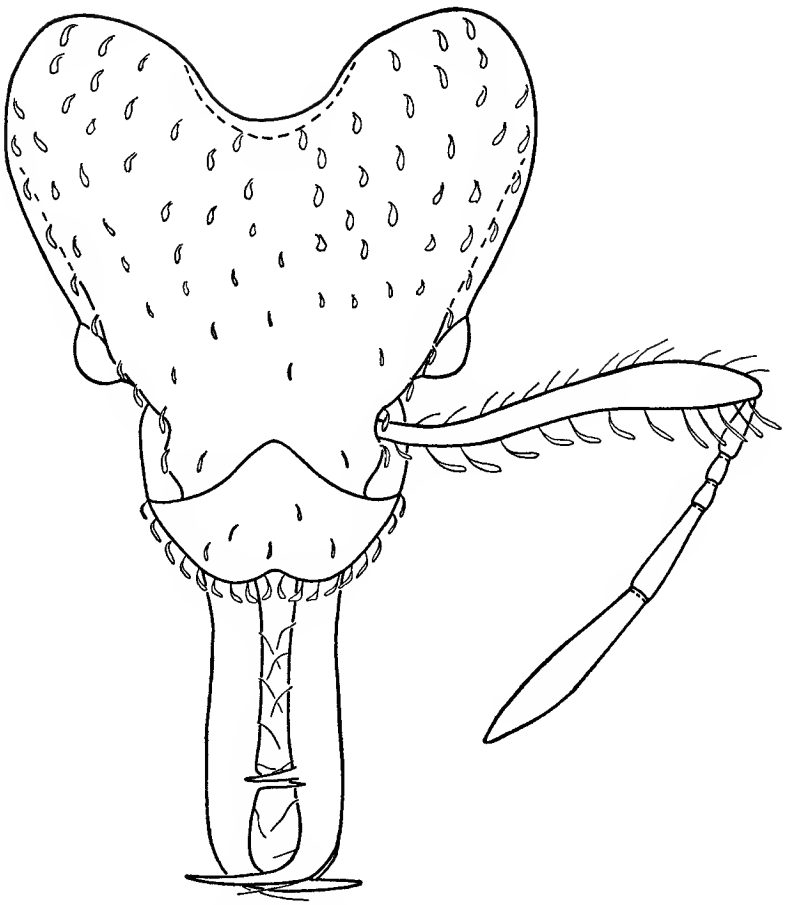

Fig. 8. *Strumigenys wallacei*, worker from Karema, Papua. Dorsal full-face view of head, ×60. Drawing by Nancy Buffler.

extensive basigastric sculpture, and the Wau specimens are like the Nganduo lot. Queen and ♂ unknown.

DISTRIBUTION: New Guinea. NE New Guinea: Nganduo, Mongi-Mape Watersheds, Huon Peninsula, ca. 1000 m, 5.VI.1955, E. O. Wilson, no. 734. Bulolo River Valley, 6 km NE of Wau, 1100 m, VI. 1962, R. W. Taylor. Papua: Karema, Brown River, III.1955, Wilson, no. 655 Bisianumu, near Sogeri, 500 m, 15-20.III.1955, Wilson.

BIOLOGY: All of Wilson's samples were taken in rain forest; the Bisianumu series came from a rotten log, the Karema lot was taken as strays in leaf litter berlesate, and the Nganduo sample came from a nest containing 100+ workers in the soil under fern rhizomes; near this last colony, workers were found foraging on the ground during a dark, rainy afternoon. The Wau sample consisted of 2 stray workers berlesed from

rain forest leaf mold.

Strumigenys opaca Brown

Strumigenys opaca Brown, 1954: 86, worker. Type loc.: Lankelly Creek, McIlwraith Range, east of Coen, central Cape York Peninsula, Queensland. Holotype in MCZ.

Worker: Dimensions and proportions within the ranges of those for *S. wallacei*, except for the head, which is significantly narrower (CI 82–86 in *opaca* type series). The apical and preapical mandibular teeth are long, but not as long as in *wallacei*. Promesonotum forming a gentle, even convexity, as usual in *Strumigenys* of related groups—not the high subangular hump of *S. wallacei*. Gastric dorsum somewhat more extensively sculptured than in the most extreme *wallacei* and opaque to subopaque. Pilosity less well developed and conspicuous than in *wallacei*. Color deep brownish red; appendages lighter.

DISTRIBUTION: Cape York Peninsula, Queensland.

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